

REMARKS

Upon careful and complete consideration of the Office Action, applicants have amended the claims which, when considered in conjunction with the comments hereinbelow, are deemed to place the present application into condition for allowance. Favorable reconsideration of all the pending claims is earnestly solicited.

Claims 1-9, 11, 12, 14-38, 40 and 44-62 are presently pending in the subject application. As a result of the amendments filed above, claims 11 and 12 have been cancelled.

The Office Action has objected to claims 50 and 51 as they were inadvertently made dependent upon higher numbered claims. Said claims have been amended accordingly and the objection is therefore respectfully requested to be withdrawn.

Claims 1-9, 11, 12, 14-38, 40, 44-46 and 61 and 62 were rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. More specifically, the Office Action has alleged that the amended phrase “hydrolyze more than 50% of the heteropolymeric arabinose present in the vegetable fiber into monomeric arabinose” in claim 1 did not have adequate support in the specification. In hope of advancing the prosecution of the subject application, applicants have amended claim 1 by deleting the phrase in question. In addition, corresponding claims 11 and 12 have also been deleted. Based on said amendment, this rejection of the claims becomes moot and is respectfully requested to be withdrawn as well.

The Office Action next rejected claims 47-60 under 35 U.S.C. § 103 (a) as being unpatentable over Ingle et al., Res. & Ind., 30, 369-373 (1985) (hereinafter referred to as “Ingle et al.”) in view of US Patent 6,506,897 to Antila et al. (hereinafter referred to as

“Antila et al.”). Ingle et al. has been cited as teaching a process to prepare arabinose from gum ghatti and was alleged to differ from the present invention in that it did not provide for the crystallization by boiling as claimed.

To make up for this alleged deficiency, the Office Action cited Antila et al. and concluded that “one of ordinary skill in the art would have found the applicants claimed process of recovering arabinose by boiling crystallization, to have been obvious at the time the invention was made” based on the cited art. “Since Ingle discloses the purification of arabinose from gum ghatti by crystallization at lower temperature and Antila discloses the recovery of L-arabinose by boiling and cooling crystallization, one skilled in the art would have a reasonable expectation for success in combining the cited references to obtain arabinose crystals from the crude solution by the process of boiling (evaporation) and cooling. Antila provides the motivation to obtain L-arabinose in crystalline form with good yields by heating/cooling procedure to avoid multiple separation and purification steps.”

The Examiner’s attention is respectfully directed to claim 47 as amended above. In said amendment, the phrase “crystallization” (second occurrence at line 2) has been amended to read “seeding, continued boiling after seeding, and cooling”. Support for this amendment can be found in the subject specification in the paragraph bridging pages 23-24, where evaporation at the boiling point of the solution is equal to boiling; and page 48, lines 29 to 34. Accordingly, in accordance with claim 47 as amended, boiling is thus continued after the seeding step. Cooling is then carried out after the continued boiling step. As further support for this crystallization procedure, the Examiner’s attention is further directed to Example 15(B) on page 48 of the subject specification. From this example, it is clear that the boiling and cooling crystallization of arabinose in accordance with the present invention comprises first boiling crystallization (by evaporating the feed syrup at a reduced pressure), seeding by adding arabinose seed crystals, followed by continuing the boiling

crystallization and then cooling. It is respectfully submitted that Ingle et al. does not disclose the crystallization by boiling in accordance with the present invention as now recited in claim 47.

With respect to the crystallization step as taught by Antila et al., the crystallization is carried out by concentrating the purified solution to 70% by weight (evaporation), seeding with arabinose seed crystals and crystallization by cooling to room temperature (see Antila et al., column 2, lines 64-66 and column 3, lines 39-42). In the process of Antila et al., there is no boiling step after the seeding step. Consequently, it is respectfully submitted that the teachings of Antila et al. do not provide any motivation to the skilled artisan to continue boiling after seeding in the crystallization of arabinose. For said reason, it is respectfully submitted that the allegation made by the Office Action in rejecting these claims no longer applies and should be withdrawn accordingly.

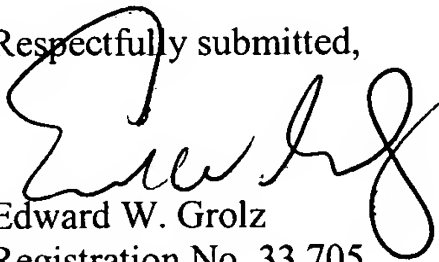
In addition to the above, it is noted that Office Action stated that the use of the mixture of the supersaturated solution and seeding would be considered an inherent property of a supersaturated arabinose solution which can be used to crystallized arabinose in improved yield disclosed in the prior art. It is respectfully submitted that during the boiling crystallization phase, after seeding, any small crystals may grow, and formation of any new crystal nuclei may be avoided, which are problems in the crystallization by cooling. The boiling step, after seeding, makes it easier to obtain crystals with good quality (i.e. a proper crystal size and crystal size distribution), which lead to easy configuration, good color removal and good yield (see the results of comparative tests 1 and 7 in Table A on pages 50-51 of the subject specification. It is stressed by the applicants that these advantages were not expected and could not be expected in view of the prior art.

Based on the above amendments and remarks, reconsideration and removal of the rejection of claims 47-60 is therefore deemed appropriate. Such action is respectfully urged.

Finally, it is noted that in addition to the amendments noted above, further amendments to claim 1, as well as claims 20 and 34 have been made to correct typographical errors. No new matter has been added by way of the proposed amendments.

The above amendments and remarks establish the patentable nature of all the claims currently in this application. Notice of Allowance and passage to issue of these claims, Claims 1-9, 14-38, 40 and 44-62, is respectfully solicited.

Respectfully submitted,



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